COLOSSUS Memo #58,   LUMINARY Memo #26

To: Distribution
From: D. Eyles
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Subject: RTB

A small (but interesting) change in the interpreter makes it possible to call from interpretive, using RTB, in general any basic subroutine which may be called using BANKCALL: in particular any basic subroutine which (1) ends with a TC Q, or a TC K if it stores Q in K, (2) does not clobber BUF2 or BUF2 +1, (3) does not clobber interpreter temporaries LOC, BANKSET, EDOP, and of course such erasables as FIXLOC and PUSHLOC and PRIORITY with which no one should trifle. A TC Q from such a routine leads through SWRETURN to DANZIG.

This amounts to a quantum jump in the sexiness of the RTB op-code; this change merges the RTB op-code with the larger set of basic subroutines callable using BANKCALL. This immediately opens a large virgin territory to interpreter users; and as TCF DANZIG routines are converted to TC Q subroutines a significant area may be opened to users of basic. Certain RTB routines which formerly could not be used in interrupt because called by the interpreter or via USPRCADR the clobbered interpreter temporaries, may now become basic subroutines and be available in interrupt via IBNKCALL; an example of this, already implemented, is QUICTRIG. Other subroutines which have required interpretive interface routines can now do without; for instance the SGNAGREE interface for TPAGREE can be dispensed with.

Note that contrary to LUMINARY Memo #25 (which gave this change its first publicity) when a routine is called by RTB, Q does not point to DANZIG. Q points to SWRETURN; BUF2 points to a TCF DANZIG.